

IMPLICATIONS OF GOING AGAINST THE DOGMA OF FEED THEM TO BREED THEM

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INTRODUCTION

Feed consumed by the cowherd is a **major cost** of beef cattle production. Much of this cost is for harvested feed provided to supplement developing heifers and pregnant cows through periods when quality and quantity of rangeland forage may be limiting.

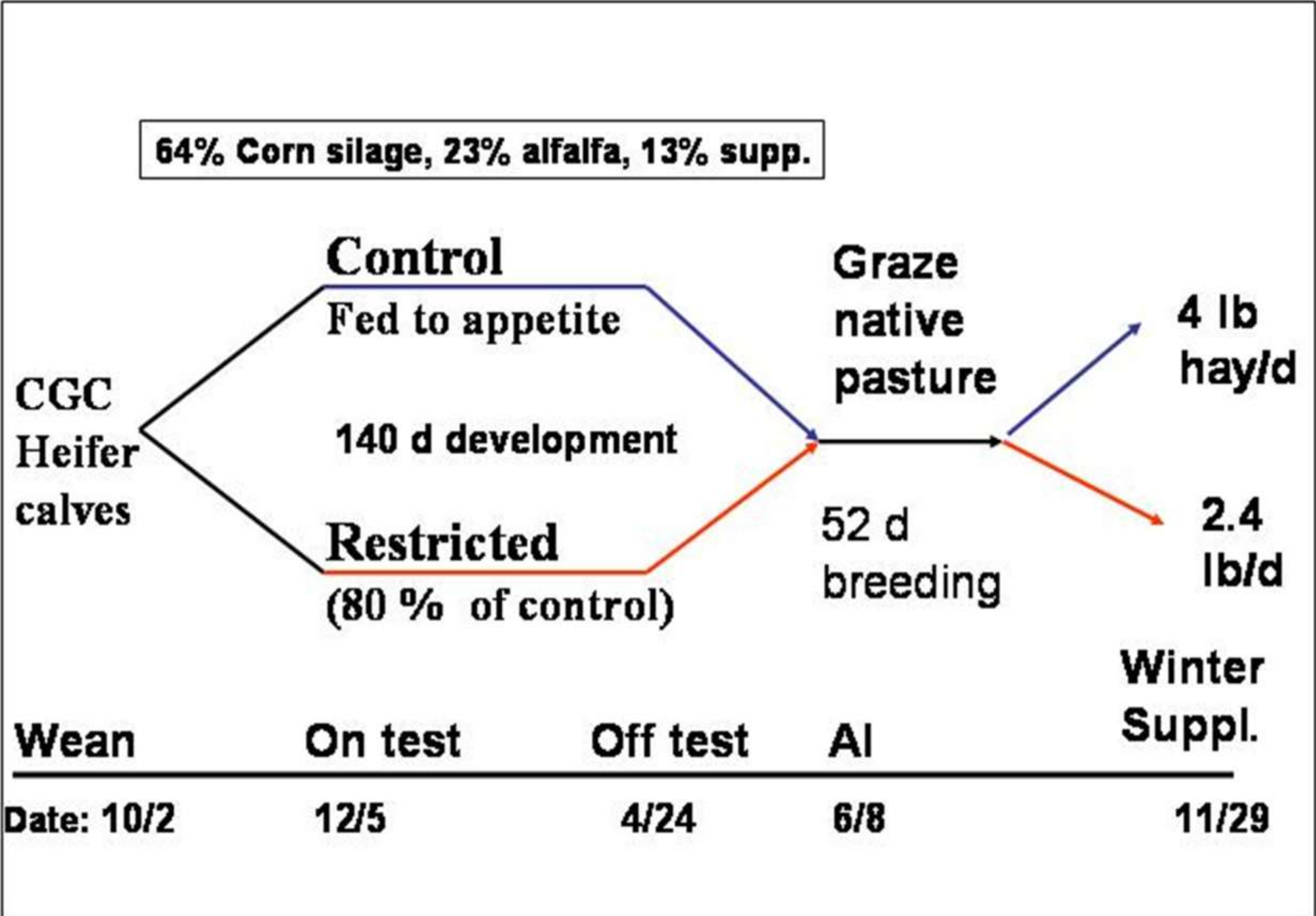
An abundance of research concerning the influences of nutrition on heifer development and cow reproductive performance has resulted in guidelines on body conditions that reflect a nutrient status that will optimize reproductive performance. However, a major limitation of the research is a focus on short term effects (single production year) **with little consideration of long-term implications.**

Providing cows with sufficient feed to maximize probability of successful reproduction may not result in maximum biological or economical efficiency. Providing feed to maximize reproductive rate **does not result in differential retention between females with high and low feed requirements.** In contrast, managing cows under reduced feed inputs would more likely result in culling of cows with high feed requirement due to reproductive failure. Furthermore, increasing the proportion of cows with reduced feed requirements may provide producers a margin of safety at times when feed resources are scarce or costly.

In addition to reducing cost of development, **rearing young animals under caloric restriction** has been shown (in other species) **to prolong lifespan.** Increasing lifespan can result in decreased replacement rate (**more calves to sell**) and **greater proportion of cows at peak productivity** (maximum productivity is between 4 to 11 yrs old).

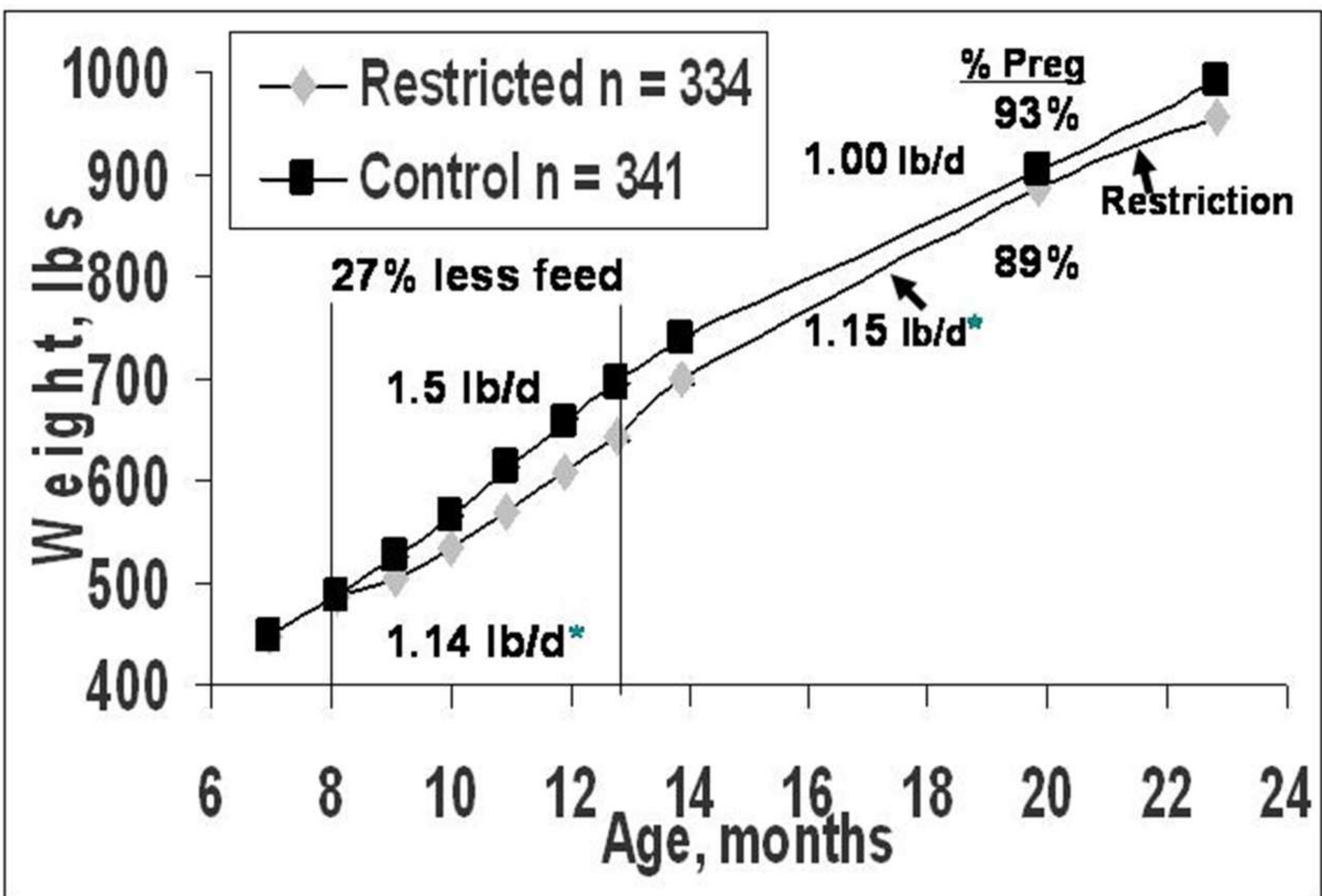
Research described below is a current summary of a **long-term project to evaluate the influence of 2 levels of nutritional input during heifer development and winter supplementation on lifetime productivity.**

Experiment Design



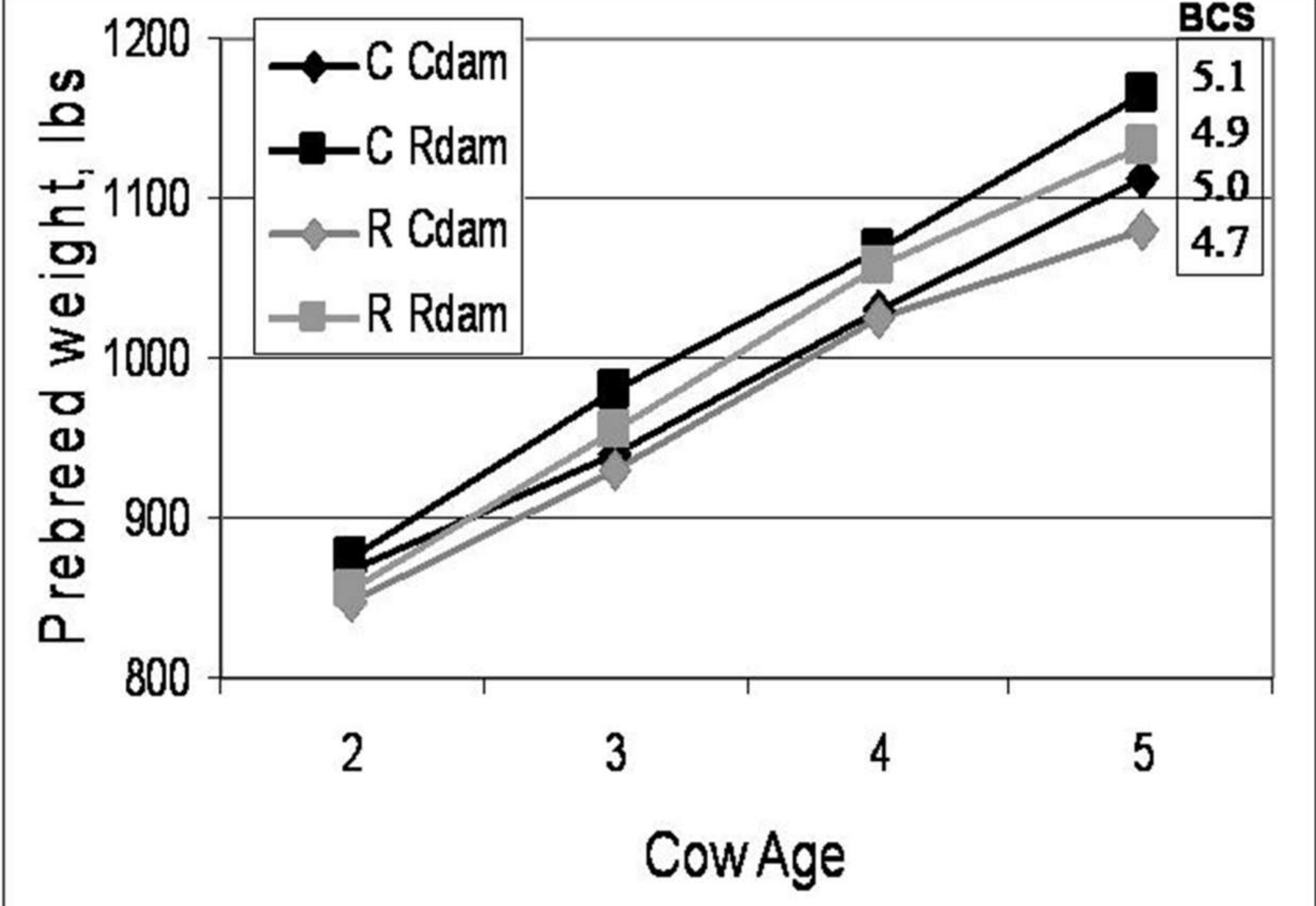
At weaning, heifers are randomly assigned to be developed on either ad lib (**Control**) or restricted (**Restricted**) levels of harvested feed. During Dec to March of each subsequent year, **Control** females were fed what was expected to be **adequate** and **Restricted** females were fed **marginal** levels of harvested feed, based on average quality and availability of winter forage.

Heifer Development



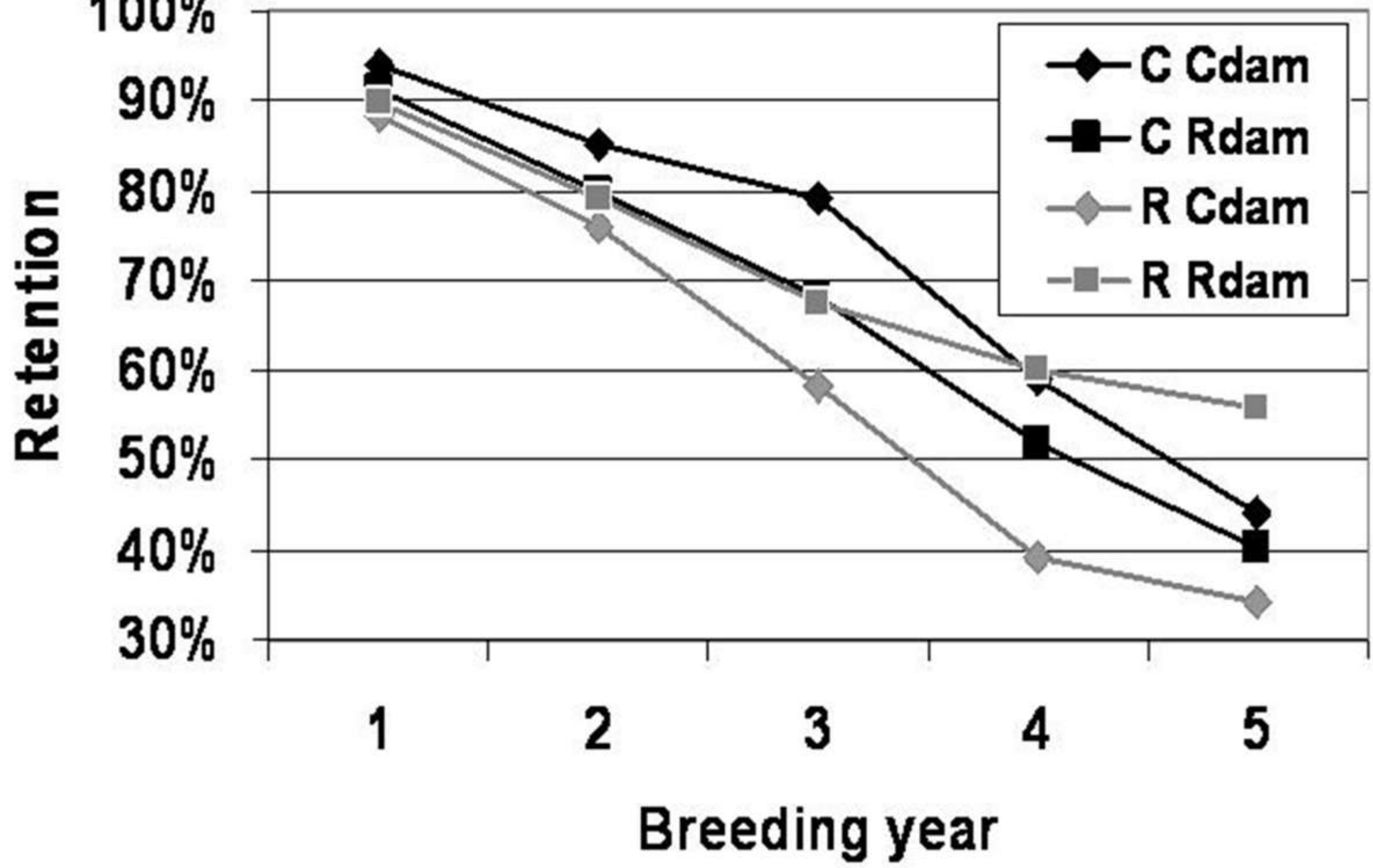
Restricted Heifer Development results in:
Improved efficiency during (greater gain:feed) and after restriction (greater ADG, lighter wt)
Less feed (~\$24) /pregnant heifer, accounting for difference in pregnancy rate

Cow weight



Restricted cows remain lighter than Controls (**grey** vs. **black** lines) = **Reduced maintenance requirements.** However, cows out of restricted dams (**Rdam**) are heavier than cows from control dams (**Cdam**) due, in part, to differences in body condition (BCS; square vs. diamond symbols) = **Influence on subsequent generation.**

Retention of CGC heifers



During first 3 years of production, retention was greater for control cows out of control dams (black line with diamond symbols). However, a trend for **greater retention later in life is being observed in restricted cows out of restricted dams** (grey line with square symbols). Restricted cows out of control dams exhibit the least desirable retention (grey line with diamond symbols).

Dam	Cow	Calf Wt	
		Birth	Wean
Control	Control	77	448
	Restricted	77	445
Restricted	Control	77	443
	Restricted	74	432

Restricted cows out of restricted dams have lighter calves at birth and weaning.



"CGC" cows, a stable composite population of 1/2 Red Angus, 1/4 Charolais, 1/4 Tarentaise.

Summary

Restricted heifer development/winter feeding
Improved efficiency
Reduced feed/pregnant heifer (\$24 savings)
200 to 300 lb less feed/winter (\$9-12/yr)

Offspring out of Restricted cows have
Greater BCS (Improved drought resistance?)
Improved longevity (5 & older) \$\$\$

Restricted Cows out of Restricted dams
Lighter calves at birth and weaning
Match genotype & environment (less milk) ?

Take Home Message: Results at the present time indicate that the long term implication of restricting levels of feed during postweaning development and throughout winter supplementation is improved production efficiency due to decreased utilization of harvested feed, increased efficiency of cows and an apparent alteration of partitioning of nutrient utilization (increased BCS and decreased calf weight) that results in increased retention of cows beyond 5 years of age.